

ATTACHMENT I - Table: Examples of Analytical Results for the Oxidized Nonradioactive Surrogates

| Date & ID | Sample Composition before Oxidation (% estimated) | Concentrations in Oxidized Water, mg/L | Operation Conditions |
|----------------------------|--|---|---|
| 05/14/99* NTLF051499 | ACN 24.5%, benzene 0.3%, DMF 4.0%, dioxane 1.5%, EtOH 1.4%, EtOAc 1.4%, IPA 27.2%, MeOH 3.4%, Pyridine 10.6%, THF 5.8%, H ₂ O 20%, | Nondetected (every component) DRE > 99.999% In-house GC/MS | CCO-1; 0.9 - 1.5mL/min; 30% sample + 70% IPA to 50% sample + 50% IPA; Oxid. cell 488–493 °C |
| 03/16/99* NTLF031699 | ACN 24.8%, benzene 0.7%, DMF 6.3%, dioxane 1.4%, EtOH 1.3%, EtOAc 1.4%, H ₂ O 20%, IPA 24.8%, MeOH 3.3%, Pyridine 10.2%, THF 5.8%, | Nondetected (every component) DRE > 99.999% In-house GC/MS | CCO-1; 1.1 - 1.4mL/min; 40% sample + 60% IPA to 30% sample + 70% IPA; Oxid. cell 502–514 °C |
| 12/10-11/98# NTLF121198 | ACN 14.4%, benzene 0.6%, DMF 2.7%, dioxane 0.7%, EtOH 0.3%, EtOAc 0.3%, IPA 14.4%, MeOH 5.5%, pyridine 2.8%, THF 2.8%, toluene 0.3%, H ₂ O 55.2% | Nondetected (every component) DRE > 99.999% <u>Verified</u> by BC Lab. | CCO-1; 1 - 1.5mL/min; 30% sample + 70% IPA to 50% sample + 50% IPA; Oxid. cell 478–508 °C |
| 05/21/98# NTLF052198 | benzene 4%, chloroform 2%, EtOH 10%, EtOAc 5%, IPA 25%, MeOH 20%, THF 5%, toluene 5%, H ₂ O 24%, | Nondetected (every component) DRE > 99.999% <u>Verified</u> by BC Lab. | CCO-1; 1 - 1.3 mL/min; 70% sample + 30% IPA to 95% sample + 5% IPA; Oxid. cell 503–519 °C |
| 10/24/97# NTLF102497 | ACN 14.5%, acetic acid 1%, benzene 1%, MeOH 4.5%, THF 0.1%, triethylamine 3%, H ₂ O 75.9% | Nondetected (every component) DRE > 99.99% <u>Verified</u> by BC Lab. | CCO-1; 1.0 - 1.5 mL/min; 20% sample + 80% IPA to 55% sample + 45% IPA; Oxid. Cell 462–489 °C |
| 07/28/97# NTLF072897 | ACN 30%, DMF 2%, EtOH 4%, EtOAc 5%, Hexane <1%, IPA 20%, MeOH 12%, THF 8%, Toluene <1%, H ₂ O 18% | Nondetected (every component) DRE > 99.999% <u>Verified</u> by BC Lab. | CCO-1; 1.2 - 1.3 mL/min; 95% sample + 5% IPA; Oxid. Cell 496–529 °C |

ACN = acetonitrile, MeOH = methanol, EtOH = ethanol, IPA = isopropanol,
THF = tetrahydrofuran, EtOAc = ethylacetate, DMF = dimethylformamide,
TMEDA = tetramethyl ethylene diamine, HC = Hydrocarbon, CO = carbon monoxide

* Samples were analyzed using in-house GC/MS.

Samples were analyzed by BC Laboratories.

ATTACHMENT J – Table: Examples of Catalytic Oxidation of Tritiated Mixed Waste Samples

| Date & ID | Sample Composition before Oxidation | Concentration in Oxidized Water (mg/L) | Operation Conditions |
|--|---|--|---|
| (10/03/97) new waste R016337 | ACN 16.8%, DMF 18.4%, dioxane 0.8%, EtOH 4.5%, EtOAc 3%, IPA 0.3%, MeOH 15.1%, THF 15.6%, H ₂ O 25.5% Vol: 550 mL; 20.4 Ci | <1.0 (in-house GC/MS) (all components) DRE > 99.99% | CCO-2; 1.0–1.2 mL/min; 40% sample + 60% IPA to 75% sample + 25% IPA; Oxid. cell 472–511 °C |
| (12/15/97) new waste R018926 | ACN 14.1%, acetic acid 0.7%, benzene 1%, MeOH 4%, THF 0.1%, triethylamine 3.1%, H ₂ O 77%, + IPA (added later) vol. 400 ml; 11.89 Ci | <1.0 (in-house GC/MS) (all components) DRE > 99.999% | CCO-2; 1.2 - 1.9 mL/min; 60% sample + 40% IPA to 90% sample + 10% IPA; Oxid. cell 470–520 °C |
| (03/31/98) new waste R018382 | Acetone 2.7%, MeOH 33.2%, IPA 40.4%, THF 3.7%, Water 20%, Vol. 235 ml; 3.5 Ci | <1.0 (in-house GC/MS) (all components) DRE > 99.999% | CCO-2; 1.2 - 1.6 mL/min; 60% sample + 40% IPA to 100% sample; Oxid. cell 506–524 °C |
| (05/26/98) inventory + new waste R019166 | ACN 5.4%, benzene 6.1%, EtOH 16.2%, EtOAc 1.1%, IPA 39%, MeOH 3.9%, THF 1.2%, toluene 2.2%, H ₂ O 25% Vol: 290 mL; 14.8 Ci | <1.0 (in-house GC/MS) (all components) DRE > 99.999% | CCO-2; 1.0–1.2 mL/min; 40% sample + 60% IPA to 75% sample + 25% IPA; Oxid. cell 472–511 °C |
| (06/24/98) inventory waste R019178 | ACN 0.2%, Chloroform 8.1% EtOH 0.1%, IPA 47.5%, MeOH 8.1%, H ₂ O 36%, Vol. 410 ml; 21.8 Ci | <1.0 (in-house GC/MS) (all components) DRE > 99.999% | CCO-2; 1.0–1.2 mL/min; 60% sample + 40% IPA to 80% sample + 20% IPA; Oxid. cell 467–531 °C |
| (08/24/98) Inventory waste R018343 | ACN 0.2%, benzene 21.6%, EtOH 0.9%, IPA 45.9%, MeOH 10.9%, pyridine 0.2%, THF 0.1%, toluene 0.2%, H ₂ O 20% Vol. 310 ml; 30.07 Ci | <1.0 (in-house GC/MS) (all components) DRE > 99.999% | CCO-2; 1.2–1.5 mL/min; 90% sample + 10% IPA to 95% sample + 5% IPA; Oxid. cell 496–514 °C |
| (11/25/98) inventory waste R020069 | MeOH 20%, IPA 30% THF 5%, H ₂ O 45%, Vol: 300 ml, 9.5 Ci | <1.0 (in-house GC/MS) (all components) DRE > 99.999% | CCO-2; 1.2 - 1.9 mL/min; 80% sample + 20% IPA to 95% sample + 5% IPA; Oxid. cell 490–538 °C |

ACN = acetonitrile, MeOH = methanol, EtOH = ethanol, IPA = isopropanol,
 THF = tetrahydrofuran, EtOAc = ethylacetate, DMF = dimethylformamide,
 TMEDA = tetramethyl ethylene diamine, HC = Hydrocarbon, CO = carbon monoxide

